IE477 - IE 478 Systems Design

FEEDBACK ON FIRST COURSE COORDINATOR MEETING AND FUTURE REQUIREMENTS

Course Coordinators

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Feedback – **Items**

- Feedback on your progress
  - **1)** First meeting with course coordinators (individual feedback)
  - **2)** This presentation (common feedback)
    - Related to your approach
    - Related to planning your work
    - Related to communicating your work
    - Others
  - **3)** Feedback letters after this presentation (individual feedback)
    - "STate Of the pRojecT" (START) letters

Feedback – **Related to Approach**

It is understandable that some components are missing: first experience

- Need to question the given limits, constraints imposed:
  - Your role: Persuade all sides, if necessary, to lift those limits which are "artificial" and replace them with decisions
  - Do not take anything for granted – critical thinking, systems-view
  - Persuasion requires solid evidences – not words
- Lack of focus on more important/crucial ideas
  - This could be observed from your presentations, as well.

Feedback – **Related to Approach**

System design issues – mostly not solving a problem at one time, but **implement it repeatedly!**

almost all conditions!

- Which decisions are currently made by the company to be replaced or supported?
- Does your approach have issues related to infeasibility?
- What new data input is needed before implementing your proposed system? Will the current system's infrastructure supply it every time it is used?
- What are the reports to be generated? For whom?

Feedback – **Related to Approach**

System design issues – mostly not solving a problem at one time, but **implement it repeatedly!**

almost all conditions!

- How frequent does you approach be used?
- How fast do you obtain a solution? (Is it fast enough? Do you need Heuristics?)
- Re-running (or updating) of your previously proposed solution
- Rolling horizon – keeping track of earlier decisions, applying them for the next decisions?
  - Consider the information you need (state of the system at the time of running your proposed approach) as input every time you run. Make sure that it is available in the current system.

Feedback – **Teamwork**

- We see the groups mostly enthusiastic - we are very happy with that.
  - However, this positive attitude usually has not been transformed into more concrete results in your approach, solution methodologies, etc.
- The underlying reason is likely to be **ineffective teamwork!**
  - We have high expectations from **a group of seven (almost) engineers**.
  - Lack of sparkles of "synergy" among the group members (Consensus among the group?)
  - Hope that this observation is only temporary. We want to see a more innovative student body.

Feedback – **Teamwork**

- The project timeline requires you to plan ahead.
  - You all focus on just the next milestone (like a midterm or HW assignment
- Use empathy - Plan ahead - Balance workload
- A suggestion of how to do?
  - Review the state of each ongoing task in every meeting
  - Estimate the probability that task will finish by its deadline
  - Revise the plans if necessary
  - If a task was not finished on time, discuss the reasons together. Come up with an alternative plan
- **Focus on the problems and not on personalities**

Project Management System

- **Are you using the Project Management System properly?**
  - All project related tasks, task assignments, outcomes will be posted
  - Each student must have a **task** in each **phase** of the project
  - All meetings with your IA and AA (meeting agenda and minutes)
  - Your CC, AA and IA will have access to this system to monitor your progress
- Be smart while planning tasks, as it will strongly indicate what you should do today to catch up with the project requirements
  - Currently not helpful for almost all the groups.

Meeting Agenda and Minutes

- Use the Meetings module of Project Management System

- Declare the agenda of the meeting well in advance.

- Take notes of

  - What was discussed and decided?

  - What is to be done next?

  - Who has to complete which task by when?

- Send minutes to all participants for review (group members, IA, AA, CC, ...) no later than 24 hours after meeting

  - Ask for additions and corrections

  - Include additions and corrections in the revised minutes

  - Send the participants the revised/final version of the minutes

Feedback – Communicating your work

- Feedback on reports/presentations - take it seriously

- Prepare for all meetings, including presentations
  - Presentations are speedy and mostly read from a script (not allowed).
  - The aim should be to present clearly to convey the main ideas.

- Get the feedback – no need to be defensive – may not need to respond immediately – take notes

- Issues mentioned/questions raised during your presentation may either show those you missed or those which you were not able to present properly

Feedback – **Other**

- ## Learn to **READ** and **FOLLOW** instructions
  - Format requirements
  - Make sure that you have relevant and meaningful titles for the project (both in English and Turkish) that all parties accept
  - Title page of presentations/reports should contain all names in alphabetical order according to your last names
  - Bilkent logo should be on your presentations
  - Do not exceed the time allotted to your presentation.

- Check Roadmap page often to get up-to-date with new documents
  - Documents related to spring semester
  - Supplementary documents

Roadmap
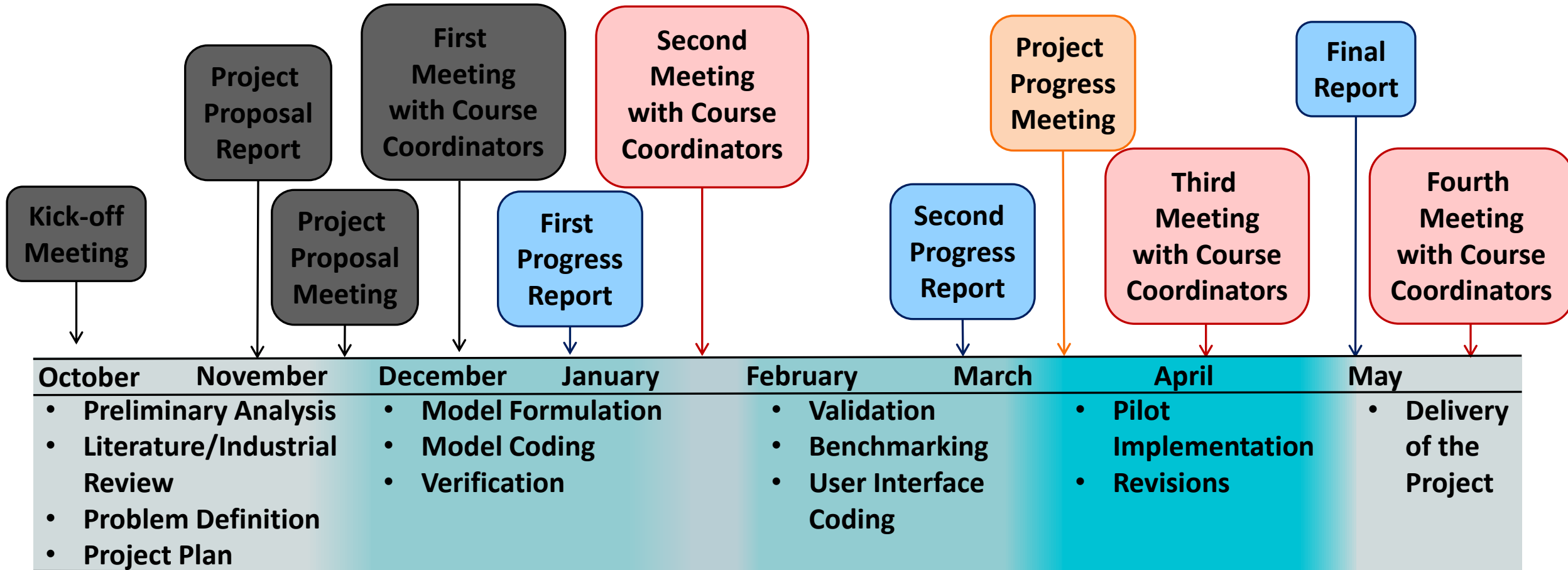
Requirements

- ~~Kick-off Meeting~~

- ~~Project Proposal Report~~

- ~~Project Proposal Meeting and Presentation~~

- ~~First Meeting with Course Coordinators~~

- First Progress Report Draft Due **December 11** Report Due **December 24**

- Second Meeting with Course Coordinators **January 9, January 10**

- Second Progress Report Report Due Early March

- Project Progress Meeting and Presentation Mid to Late March

- Third Meeting with Course Coordinators Early to Mid April

- Final Report Report Due Mid May

- Fourth Meeting with Course Coordinators Late May

First Progress Report and
Second Meeting with Course Coordinators

- Brief definition of the Problem

- Literature Review

  - Previous studies in the scientific literature

  - Similar Studies in the industry

- Proposed Methodolgy

- Model Development and Verification

- Plans for Validation

- Time Plan

You will upload a video by **Jan 3**. However you will also present **LIVE** during the meeting.

Verification

What is model verification?

- Check if model constructed (approach) is yielding results, solutions as intended (expected, planned)
  - Do you cover all desired components/cases? Extreme cases? Infeasibilities?
  - Is your approach useful? Do you obtain a solution in a reasonable amount of time when an input comparable to the size of input in real life is provided?

- **No need to have real data for Verification!**

- **Read the document on the course Web Page**

Verification is to be completed by the end of the Fall semester!

Validation

What is model validation?

- Check if models constructed are yielding results comparable to current affairs when current decisions are implemented.

- Is your approach/model **credible?**

- You have to make sure that you know and company agrees on how, when and with what input/output to make the validation of your approach.

Validation

You need the following:

- How are the decisions made in the current system?
- What performance measures are used?
- Comparison methods: Simulation using the past data; Implementation of your approach by the company; others

- **Start planning NOW for Spring Semester.**

- **We want to see the plans for validation in your First Progress Report and at the Second Meeting with Course Coordinators**

Benchmarking

What is benchmarking?

- Benchmarking is measuring and showing the benefit of your approach compared to what is currently done

  - A natural follower of VALIDATION.

  - Make sure that you can quantify the benefits you bring and make comparison with the current system – benchmark your results with the current system. (usually a percentage improvement)

  - This is needed to convince the company advisors about the usefulness of your approach and hence do a pilot study.

This is what you need to plan for Spring, after validation (partly with validation)

Time Plan

We want you to make sure that you see your future activities as detailed as possible.

- Some groups did not consider planning Spring semester at all!

- **Verification** and **plans of validation** by the end of December.

- Work packages and time charts are needed for you to consider these activities

- **TARGET IS AN <u>ALMOST COMPLETE PROJECT</u> by Mid-March**

  - The pilot study's ending date is at the latest end of April.

  - Keep May open for the final touches on the project content, final report, presentations etc.

Feedback – **Other**

- ## We frequently observed some other problems

  - ### Use of jargon (Turkish, English)

    - You will perform two more Turkish presentations next semester
    - Borrow one copy of the TMMOB IE&MS Terminology

      Dictionary from the department secretary

  - ### Meetings: Be active, body language, dress code

    - Professionalism

WE ARE OPTIMISTIC - EXPECTING IT TO CHANGE

Feedback – **Other**

- Emails/Announcements
  - Read the announcement emails carefully!
- Files/Uploads
  - Filenames must have project short-codes for ALL files you upload.
  - Do not upload any ZIP/RAR files to Bluesky.
- Handouts for the CC meeting
  - Should be short, precise, and readable by us in less than a minute. We do not look at those after the meeting.
- Bilwrite
  - Plan in advance to receive feedback on time

IE 477 Assessment Criteria

- Our expectation (may slightly differ with respect to the project scope and solution strategy):
  - Brief definition of the Problem
    - Analysis of the current system
  - Literature Review
    - Previous studies in the scientific literature
    - Similar Studies in the industry
  - Proposed System - Methodology
    - Model Development and Verification
  - Project Plan: Timetable + clearly specified work packages (and preliminaries on the work should have been initiated) for IE 478

Grading

- **F** grade will be granted to groups/students with unsatisfactory progress during the semester.

- **FX** grade will be granted to groups/students with unsatisfactory progress during the semester

  AND any of the following:

  – groups not submitting the *First Progress Report* for IE 477 or *Final Report* for IE 478

    OR

  – students not attending *Second Meeting with Course Coordinators* for IE 477 or *Fourth Meeting with Course Coordinators* for IE 478 with no valid excuse

    OR

  – groups not submitting their updated report if they received an Incomplete grade

Grading

- **FZ** grade will be granted in IE 477 or IE 478 to students with:
  - major issues related to attendance to the periodic meetings with Academic Advisor and/or Industrial Advisor

      OR
  - major issues related to contribution to the project

      OR
  - no group of seven members*

      OR
  - no project assigned

      OR
  - incorrect or incomplete part-time work or internship disclosure

Grading

- We are planning to grant I grade (incomplete grade) for <u>at least</u> two situations described below:
  - Those groups which we think will considerably improve their position after a couple of weeks of additional work
  - Those groups which will fail if the group can not bring the project to an acceptable level
- In the next round of group presentations to us we are planning to ask more questions to individuals - just to confirm **teamwork** component of the course.

Incomplete Grade Resolution

- The important dates for incomplete grades:
  - Announcing the groups/students with incomplete grades (e-mail) – January 10, 2025, by the end of the day
  - Groups/students with incomplete grades return their work by the time allotted by the CCs
  - If you do not complete the missing work within the time limit, this grade will be replaced with an FX.

Incomplete Grade Resolution

- The Incomplete grade must be resolved:
  - 14 days after the announcement of the letter grades (Jan 27, 2025)
  - Before the add/drop period of the next semester begins (Jan 24, 2025)

  (whichever is earlier). It will become FX if not resolved.

- During this time period the status of the student (Satisfactory, Probation, Unsatisfactory…) cannot be calculated.
  - **Course pre-loads cannot be performed** (Jan 15-22 for mandatory courses, Jan 23 for elective courses)

- When you submit your new work to us, allow for 2-3 days for the actual letter grade to be updated on STARS (paperwork).

Feedback – **Individual**

- In your START letter, you will have feedback on your progress and detailed comments on your work so far.
  - Some of these comments may have also been shared with you during the meetings.
- You will see your progress pace in **one or two** of these categories:
  1. Above expectations
  2. As expected
  3. Slow
  4. Very slow

Traditional Envelope Ceremony